

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ira S. Matsil on 09/24/03.

The application has been amended as follows:

E1 In independent claim 1, limitation c) ~~prior to implanting insert~~ after forming the STI region and forming liner layer, and following implanting F₂ into ~~delete~~ "side walls" insert—upper top corners--.. In limitation d) filling the STI ~~delete~~ "F2" insert—F₂--.

In independent claim 11, following the trench including ~~delete~~ "side walls" insert—upper top corners--.. Following implanting fluorine into the ~~delete~~ "side walls" insert—upper top corners--..

2. The following is an examiner's statement of reasons for allowance: Applicant independent claims 1 and 11 are allowed over the prior art of record because none teach or render obvious in a process of fabricating a narrow channel width PMOSFET device, the improvement of affecting reduction of negative bias temperature instability by use of F₂ side wall implantation, comprising: after forming the STI region (trench) and forming liner layer, implanting F₂ into upper top corners of said STI liner oxidation layer at a large tilted angle in sufficient amounts to affect reduction of negative bias temperature instability and enhance gate oxidation at the STI corner after high density plasma fill of said STI F₂ implanted liner oxidation

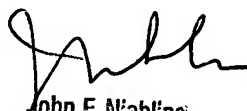
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layer. Kunikiyo US Patent 6,333,232 and Son et al. US Patent 5,904,538 discloses a semiconductor structure providing a shallow trench isolation region where a fluorine ions are implanted at a tilted angle into the corners, however the fluorine ion implantation process described in the invention implants the fluorine ions at a large tilt angle after the trench and liner layer is formed at the upper top corners of the trench.

3. All dependent claims are also rendered allowable.
4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stanetta D. Isaac whose telephone number is 703-308-5871. The examiner can normally be reached on Monday-Friday 7:30am -5:30pm.
6. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Nebling can be reached on 703-308-3325. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.
7. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Stanetta Isaac
Patent Examiner
September 24, 2003


John F. Nebling
Supervisory Patent Examiner
Technology Center 3300

